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LXXV. *Cases of the remarkable Effects of Blisters in lessening the Quickness of the Pulse in Coughs, attended with Infarction of the Lungs and Fever: By Robert Whytt, M. D. F. R. S. Fellow of the Royal College of Physicians, and Professor of Medicine in the University of Edinburgh.*

Read Feb. 16.
1758.

ONE of the most natural effects of blistering plaisters, when applied to the human body, is to quicken the pulse, and increase the force of the circulation. This effect they produce, not only by means of the pain and inflammation they raise in the parts to which they are applied, but also because the finer particles of the *cantharides*, which enter the blood, render it more apt to stimulate the heart and vascular system.

The apprehension, that blisters must in every case accelerate the motion of the blood, seems to have been the reason, why some eminent physicians have been unwilling to use them in feverish and inflammatory disorders, till after the force of the disease was a good deal abated, and the pulse beginning to sink. However, an attentive observation of the effects, which follow the application of blisters in those diseases, will shew, that instead of increasing, they often remarkably lessen the frequency of the pulse. This I had occasion formerly to take notice

of (1), and shall now evince more fully by the following cases.

I. A widow lady, aged about 50, was seized (December 1755) with a bad cough, oppression about her stomach and breast, and a pain in her right side, tho' not very acute. Her pulse being quick, and skin hot, some blood was taken away, which was a good deal fizy: attenuating and expectorating medicines were also prescribed. But as her complaints did not yield to these remedies, I was called on December 26th, after she had been ill about ten days; at which time her pulse beat from 96 to 100 times in a minute, but was not fuller than natural. I ordered her to lose seven or eight ounces more of blood, which, like the former, was fizy; and next day, finding no abatement of her complaints, I advised a blister to be applied, in the evening, to that part of her right side which was pained. Next morning, when the blister was removed, the pain of her side was gone, and her pulse beat only 88 times in a minute, and in two days more it came down to 78. However, after the blistered part became dry, the pulse rose in one day's time to 96, and continued between that number and 90 for four days; after which I ordered a large blister to be put between her shoulders. When this plaister was taken off, her pulse beat under 90 times in a minute; and next day it fell to 76, and the day after to 72. The cough and other symptoms, which were relieved by the first blister, were quite cured by the second.

II. John Graham, bookbinder, in Edinburgh, aged 37, of a thin habit of body, formerly subject to coughs, and thought to be in danger of a *phthisis pulmonalis*, having exposed himself unwarily to cold in the night time, was, about the end of January 1756, seized with a bad cough and feverishness; for which he was blooded, and had a diaphoretic julep, a pectoral decoction, and a mixture with *gum. ammoniacum* and *acetum scilliticum*, given him by Mr. James Russell, surgeon-apothecary in this place. On the 12th of February, after he had been ill above a fortnight, I was desired to visit him. He seemed to be a good deal emaciated; his eyes were hollow, and cheeks fallen in: he was almost constantly in a sweat; coughed frequently, and spit up a great quantity of tough phlegm, somewhat resembling *pus*: his pulse beat from 112 to 116 times in a minute. In this condition I ordered immediately a blister to be applied between his shoulders, which lessened in some degree his cough and spitting, as well as the frequency of his pulse; but the blistered part no sooner began to heal, than he became as ill as before, and continued in this bad way nine or ten days, gradually wasting, with continued sweats, and a great spitting of a thick *mucus*. During this time he used *tinctura rosarum*, and the mixture with *gum. ammon.* and *acet. scillit.* without any sensible benefit, and had six ounces of blood taken away, which was very watery, and the *crassamentum* was of a lax texture. In this almost desperate condition, another blister, larger than the former, was put between his shoulders, which remarkably lessened his cough and spitting, and in two or three days reduced his pulse to 96 strokes in a

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minute.

minute. After this he continued to recover slowly, without the assistance of any other medicine, except the *tinctura rosarum* and the mixture with *gum. ammon.* and *acet. scillit.* and at present he enjoys good health.

III. Mrs. ———, aged upwards of 40, who had for several years been subject to a cough and spitting in the winter months, was, in October 1756, seized with those complaints in a much greater degree than usual; to remove which, she was blooded, and got some attenuating and pectoral medicines from Mr. John Balfour, surgeon-apothecary in Leith. I was called on November 11th, after she had been ill several weeks, and found her in a very unpromising condition. She had a frequent and severe cough, with great shortness of breath and a wheezing; her lungs seemed to be quite stuffed with phlegm, of which she spit a vast quantity every day, and of such an appearance, that I was apprehensive it was, in part at least, truly purulent. When she sat up in a chair, her pulse beat above 130 times in a minute. She had a considerable thirst, and her tongue was of a deep red colour, with a beginning aphthous crust on some parts of it. She was so weak, and her pulse so feeble, that there was no place for further bleeding: a blister was therefore applied to her back, November 11th, which somewhat lowered her pulse, and lessened the shortness of breathing and quantity of phlegm in her lungs. November 16th, a second blister was laid to her side, which gave her still more sensible relief than the former, and reduced her pulse to 114 strokes in a minute. November 25th, a third blister

blister was applied to her back; by which her cough and wheezing were rendered considerably easier, and the phlegm, which she spit up, lost its purulent appearance, became thinner, more frothy, and was much less in quantity. Her pulse beat now only 104 times in a minute. After this, her cough and spitting increasing again, she had, on the 20th of December, a fourth blister applied to her back, which, like the former, did her great service. Her stomach being extremely delicate, I scarce ordered any medicines for her all this time, except a cordial julep, with *spir. volat. oleos.* tincture of rhubarb as a laxative, and a julep of *aqu. rosar. acet. vin. alb.* and *syr. balsam.* of which last she took two table spoonfuls twice or thrice a day in a quarter of a pint of lint-seed tea. After the fourth blister, she drank for some time a cupful of *infusum amarum* twice a day, and continued to recover slowly: and tho' during the remaining part of the winter she was, as usually, a good deal troubled with a cough, yet in the spring she got free from it, and is now in her ordinary health.

IV. Christian M'ewen, aged 21, had laboured under a cough, thick spitting, pain of her breast, and pains in her sides affecting her breathing, for about a twelvemonth: and after getting, by proper remedies, in a good measure free from those complaints, her cough, from catching a fresh cold, increased to a greater degree than ever, became hard and dry, and was attended with a constant difficulty of breathing, pain in her left side, and head-ach. After having been seven or eight days in this condition, she was admitted into the Royal Infirmary, January

nuary 9th, 1757. As her pulse was small, tho' very quick, viz. beating 130 in a minute, I thought it unnecessary to bleed her, as from former experience I did not doubt but that blistering alone would relieve her: I ordered, therefore, a large blister to be applied to her left side, where she complained of pain, and prescribed for her the following julep:

℞ *Aqu. menth. simp. spirit. Minderer. ana* ℥ij.
acet. scillit. ℥i. sacchar. alb. ℥ij. misce; cap.
coch. ij. ter in die.

She was also desired to breathe frequently over the steam of hot water, and to drink lintseed tea.

January 10th. Her pulse beat only 112 times in a minute, and was somewhat fuller than on the 9th. The blister was not removed till late in the evening, and made a plentiful discharge. The cough having been so severe last night, as to keep her from sleep, I ordered her the following anodyne draught:

℞ *Spirit. Minderer. ℥ss. acet. scillit. ℥i. syr. papav. alb. 3vi. misce; cap. hor. somni.*

Jan. 11th. The cough easier last night; difficulty of breathing less; pulse 108 in a minute. Ordered the anodyne draught to be repeated, and the use of the julep, with *acet. scillit.* to be continued.

Jan. 12th. Pulse slower; cough and pain of the side easier; but still complains of a head-ach.

Jan. 13th. Pulse 94 in a minute; cough continues easier in the night, but is troublesome in the day-time.

Jan. 14th. Every way better; pulse only 80 in a minute. As her cough is still bound, ordered her, besides the medicines above-mentioned, a pectoral decoction of *rad. alth. &c.*

Jan. 15th.. Cough and other complaints in a great measure removed : pulse 65 in a minute.

From this time her cough gave her little trouble ; but on the 18th she complained of a pain in the *epigastrium*, with sickness at stomach, want of appetite, and a giddiness in her head, which were considerably relieved by a vomit, *infusum amarum*, and stomachic purges ; and were almost wholly cured by the return of her menses on the 5th of February, after an interval of eight weeks.

V. A girl 21 months old, who had (December 1756) a great load of the small-pox, and not of a good kind, with a cough and obstructed breathing, was, on the seventh day from the eruption, blistered on the back ; by which the pulse was lessened from 200 to 156 strokes in a minute. Next day her legs were also blistered, and the pulse thereby fell to 136. But the child's lungs being much oppressed, and her throat being so full of pustules that she could scarce swallow any thing, she died towards the end of the ninth day.

I could add several other cases of the remarkable effects of blisters in lessening the quickness of the pulse in coughs attended with fever, pain in the side, and pituitous infarction of the lungs : but those above may be sufficient to put this matter out of doubt, as well as to remove any prejudice, that may still remain against the free use of so efficacious a remedy.

In a true peripneumony, especially where the inflammation is great, repeated bleeding is the principal remedy, and blisters early applied are not so proper.

proper. But when the peripneumony is of a mixed kind; when the lungs are not so much inflamed as loaded with a pituitous matter; when bleeding gives but little relief; when the pulse, tho' quick, is small; when the patient is little able to bear evacuations, and the disease has continued for a considerable time; in all these cases blistering will produce remarkable good effects, and, far from increasing, will generally lessen the frequency of the pulse, and fever, more speedily than any other remedy.

On the other hand, when the fever and frequency of the pulse proceed from a true inflammation of the lungs, from large obstructions tending to suppuration, or from an open ulcer in them, blisters will be of less use, nay, sometimes will do harm, except in the last case, where they, as well as issues and setons, are often beneficial, tho' seldom able to compleat a cure. But as in pituitous infarctions of the lungs, with cough and fever, repeated blisters applied to the back and sides are far preferable to issues or setons, so these last seem most proper in an open ulcer of the lungs. The former make a greater and more sudden derivation, and are therefore adapted to acute cases; the latter act more slowly, but for a much longer time, and are therefore best suited to chronic diseases. Further, while blisters evacuate chiefly the serous humours, issues and setons generally discharge true purulent matter, and on this account may be of greatest service in internal ulcers.

In what manner blisters may lessen the fever and frequency of the pulse attending internal inflammations, I have elsewhere endeavoured to explain (2);

(2) Physiological Essays, p. 69.

and shall only add here, that in the cases above recited, where the quick pulse and feverishness proceeded more from a pituitous infarction than a true inflammation of the lungs, blisters, by relieving this organ, in some measure, of the load of humours oppressing it, would render the circulation through its vessels freer, and consequently lessen the quickness of the pulse, and other feverish symptoms.

It may not, however, be improper briefly to point out the reason, why blisters, which have been observed to be remarkably efficacious, even when early applied, in pleurifies (3), are less so in true peripneumonies. This difference, I imagine, may be accounted for from there being no immediate communication between the pulmonary vessels and those of the sides and back, to which the blisters are applied; whereas the *pleura*, and intercostal muscles, are furnished with blood-vessels from the intercostal arteries, which also supply the teguments of the *thorax*: so that while a greater flow of serous humours, and also indeed of red blood, is derived into the vessels of the external parts, to which the vesicatories are applied, the force of the fluids in the vessels of the inflamed *pleura*, or intercostal muscles, must be considerably lessened. Further, as the intercostal muscles and *pleura* are, as well as the teguments of the *thorax*, supplied with nerves from the *true* intercostals, blisters applied to the back and sides may perhaps, on this account also, have a greater effect in relieving inflammations there than in the lungs,

(3) Dr. Pringle's Observations on the Diseases of the Army, part iii. chap. 2.

which have nerves from the eighth pair, and from the *intercostals* improperly so called.

Edinburgh, May 23d, 1757.

Extract of a Letter from Dr. Whytt, Professor of Medicine in the University of Edinburgh, and F. R. S. to Dr. Pringle, F. R. S.

Edinburgh, 10 Nov. 1757.

WHAT you remark with regard to blisters being freely used by the physicians at London, in the cases mentioned in the paper I last sent you, is very just, and indeed what I knew; but altho' their efficacy in such circumstances is now generally acknowledged both in England and Scotland, yet I do not remember that their remarkable quality in lessening the quickness of the pulse has been particularly attended to. This, therefore, I thought it might not be amiss to ascertain by a few careful observations.

I agree intirely with you, as to the use of blisters in fevers; being of opinion, that when there is no particular part obstructed or inflamed, they are of little service, and sometimes hurtful, unless perhaps towards the end, when the pulse begins to sink. Nay, in fevers, where the substance of the brain is affected, and not its membranes, I have never found any sensible benefit from blisters: and I always suspect the brain itself affected, when a fever and delirium come on without any preceding head-ach, or redness in the *tunica albuginea* of the eyes. This kind of fever I have met with several times, and have observed it to be generally fatal.